XM-2540/2540S

SERVICE MANUAL

US Model
Canadian Model
XM-2540

AEP Model
UK Model
E Model
XM-2540S

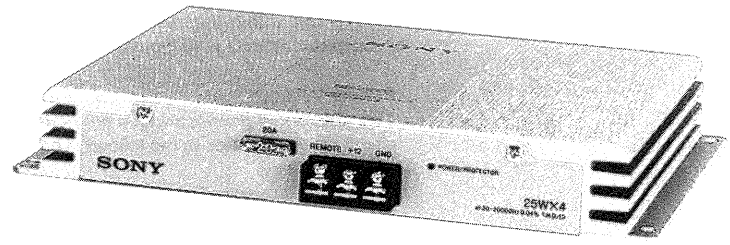


Photo : XM-2540S

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION 25 watts per channel minimum continuous average power into 4 ohms, both channels driven from 20 – 20,000 Hz with no more than 0.04 % total harmonic distortion per Car Audio Ad Hoc Committee standards.

Other Specifications

Circuit system: OTL (output transformerless) circuit pulse power supply
Inputs: RCA pin jacks*
* Also compatible with the speaker outputs of a car audio with the use of supplied high level input cords.
Outputs: Speaker output leads
Speaker impedance
2 – 8 ohms (stereo)
4 – 8 ohms (when used as a bridging amplifier)
Maximum output at 4 ohms
50 W per channel with 4-speaker system
40 W × 2 plus 140 W × 1 with 3-speaker system
120 W per channel with 2-speaker system
Rated outputs (supply voltage at 14.4 V)
25 W per channel with 4-speaker system (20 Hz – 20 kHz, 0.04% THD, at 4 ohms)
30 W per channel with 4-speaker system (20 Hz – 20 kHz, 0.3% THD, at 2 ohms)
20 W per channel (20 Hz – 20 kHz, 0.04 % THD, at 4 ohms) plus 70 W (20 Hz – 20 kHz, 0.3% THD, at 4 ohms) with 3-speaker system
60 W per channel with 2-speaker system (20 Hz – 20 kHz, 0.3% THD, at 4 ohms)
Frequency response
5 Hz – 100 kHz ($^{+0}_{-3}$ dB)
Harmonic distortion
0.005% or less (at 1 kHz, 4 ohms, 10 W)
Input level adjustment range
0.2 – 2 V
2 – 16 V (High level input connection)
Power requirements
12 V DC car battery (negative ground)
Power supply voltage
10.5 – 16 V
Current drain: at rated output: 14 A (4 ohms, 25 W × 4)
at 10% THD: 20 A
remote input: 5 mA
Dimensions: Approx. 201 × 46 × 169 mm (w/h/d) (8 × 113/16 × 63/4 in.) not incl. projecting parts and controls
Mass: Approx. 1.7 kg (3 lb. 12 oz.) not incl. accessories
Supplied accessories
Mounting screws (4)
Speaker output leads (1 set)
High level input cords (4)

Design and specifications subject to change without notice.

使用時は添付資料も参照のこと
Refer to the additional documents.

STEREO POWER AMPLIFIER

SONY®

Features

- Maximum power output of: 50 watts per channel with a 4-speaker system, 40 watts × 2 plus 140 watts × 1 with a 3-speaker system or 120 watts per channel with a 2-speaker system (at 4 ohms).
- Wide dynamic range and low distortion (less than 0.005%).
- Provided with a protection circuit.
- Pulse power supply* for stable and regulated output power.
- Direct connection can be made with the speaker output of your car audio if it is not equipped with the line outputs (High level input connection).

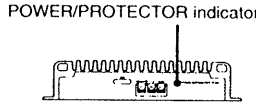
***Pulse power supply**
This unit has a built-in convertor which converts the power supply from the DC 12 volt car battery into high speed signals by the use of the semiconductor switch. These signals will be stepped up by the built-in pulse transformer and separated into both positive and negative power supplies before being converted into the direct current again. This is to regulate the otherwise variable voltage of the car battery.
The light weight power supply system provides the highly efficient power supply with a low impedance output.

Fuse Replacement

If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after the replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.

Warning
Use the specified fuse with correct amperage rating.
Use of a fuse with higher amperage rating may cause serious damage to the unit.

*Protection circuit
This amplifier is provided with a protection circuit which operates in the following cases when:
— the unit is overheated
— a DC current is generated
— the speaker terminals are short circuited.
The color of the POWER/PROTECTOR indicator will change from green to red and the unit will shut down. If this happens, turn off the connected equipment and take out the cassette tape or disc and determine the cause of the malfunction. If the amplifier has overheated, wait until the unit cools off.



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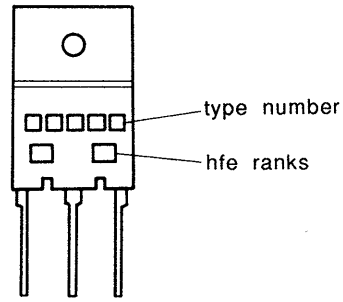
SERVICE NOTE

Notes in regard to replcing the power amplitude transistors (Q112, 113, 212, 213, 312, 313, 412, 413)

When replacing the transistors used for power amplitude section (2SB1587, 2SD2538), replace both transistors with same hfe ranks for each channel.



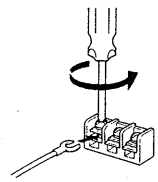
SECTION 1
GENERAL

This section is extracted from instruction manual.

Connections

Caution
- Before making any connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Be sure to use speakers with adequate power handling capacities. If you use speakers with small capacity, they will be damaged.
- Do not connect the ⊖ terminal of the speaker system with the car chassis, and do not connect the ⊖ terminal of the right speaker with that of the left speaker.
- Run the input and output cords away from the power supply lead as running them closely can generate some interference noise.
- This unit is a high powered amplifier. Therefore, it may not perform its full potential if used with the existing speaker cords supplied to the car.
- If your car is equipped with a computer system for navigation or some other purposes, be sure not to remove the ground wire from the car battery. If you disconnect the wire, the memory of the computer may be erased. To avoid short circuits when making connections, connect the +12 volt power supply lead only after all the other leads have been connected.

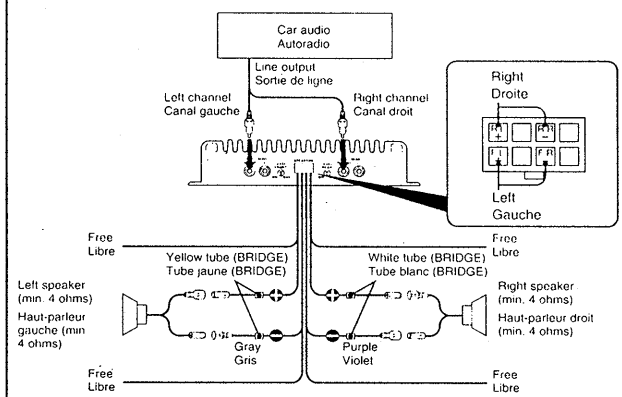
Make the terminal connections as illustrated below.



When you tighten the screw, be careful not to apply too much torque* as doing so may damage the screw.

*The torque value should be less than 1 N•m.

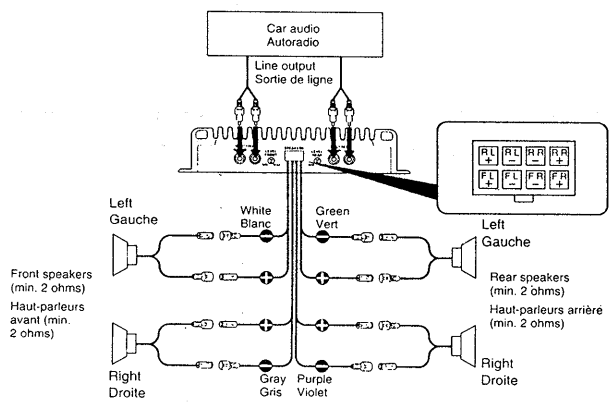
2-Speaker System
Système à 2 haut-parleurs



Note
Use only the input jacks FRONT R(MONO) and REAR R(MONO) for connecting the outputs from the car audio. In this case, the outputs from the speaker leads RL(+) and RR(–) will correspond to the input signal going into the input jack REAR R(MONO). The outputs from the speaker leads FL(+) and FR(–) will correspond to the input signal going into the input jack FRONT R(MONO) of this unit.

Remarque
N'utilisez que les prises d'entrée FRONT R(MONO) et REAR R(MONO) pour raccorder les sorties de l'autoradio. Dans ce cas, les sorties pour les cordons de haut-parleurs RL(+) et RR(–) correspondent au signal d'entrée fourni à la prise d'entrée REAR R(MONO) et les sorties pour les cordons de haut-parleurs FL(+) et FR(–) correspondent au signal d'entrée fourni à la prise d'entrée FRONT R(MONO) de cet appareil.

4-Speaker System
Système à 4 haut-parleurs



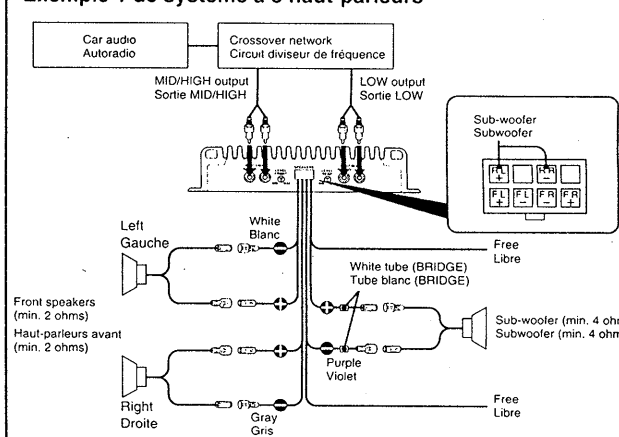
Note
Remember that the outputs from the car audio which are to be connected to the input jacks correspond with the output combinations of the speaker leads.

Remarque
N'oubliez pas que les sorties de l'autoradio qui doivent être raccordées aux prises d'entrée correspondent aux différentes sorties de cordons de haut-parleurs.

You can also make a 4-speaker connection with only two channel inputs by using the input jacks FRONT R(MONO) and REAR R(MONO). In this case, the outputs from the speaker leads FL(+), FL(–), FR(+) and FR(–) will correspond to the input signal going into the input jack FRONT R(MONO). The outputs from the speaker leads RL(+), RL(–), RR(+) and RR(–) will correspond to the signal going into the input jack REAR R(MONO) of this unit.

Vous pouvez raccorder un système à 4 haut-parleurs avec deux entrées de canal seulement si vous utilisez les prises d'entrée FRONT R(MONO) et REAR R(MONO). Dans ce cas, les sorties pour les cordons de haut-parleurs FL(+), FL(–), FR(+) et FR(–) correspondent au signal d'entrée fourni à la prise d'entrée FRONT R(MONO) et les sorties pour les cordons de haut-parleurs RL(+), RL(–), RR(+) et RR(–) correspondent au signal fourni à la prise d'entrée REAR R(MONO) de cet appareil.

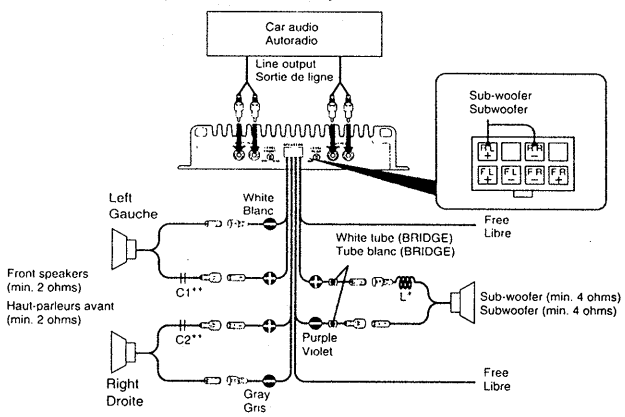
3-Speaker System Example 1
Exemple 1 de système à 3 haut-parleurs



Note
The output signals for the sub-woofer will be the combination of the signals going into both the REAR R(MONO) and L input jacks of the unit.

Remarque
Les signaux de sortie pour le subwoofer seront constitués des signaux combinés fournis aux prises d'entrée REAR R(MONO) et L de cet appareil.

3-Speaker System Example 2
Exemple 2 de système à 3 haut-parleurs



Note
The output signals for the sub-woofer will be the combination of the signals going into both REAR R (MONO) and L input jacks of the unit.

Remarque
Les signaux de sortie pour le subwoofer seront constitués des signaux combinés fournis aux prises REAR R(MONO) et L de cet appareil.

Table of crossover values for 6 dB/octave (4 ohms) (not supplied)

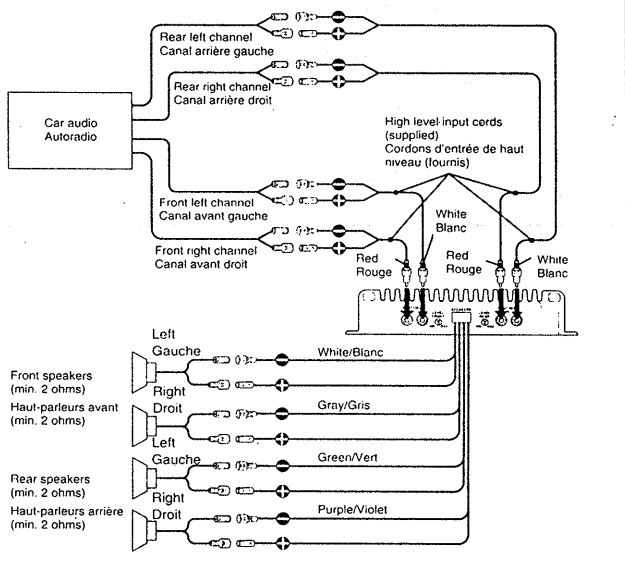
Crossover Frequency unit: Hz	L* (coil) unit: mH	C1/C2** (capacitor) unit: µF
50	12.7	800
80	8.2	500
100	6.2	400
130	4.7	300
150	4.2	270
200	3.3	200
260	2.4	150
400	1.6	100
600	1.0	68
800	0.8	50
1000	0.6	39

Tableau des valeurs de division pour 6 dB/octave (4 ohms) (non fourni)

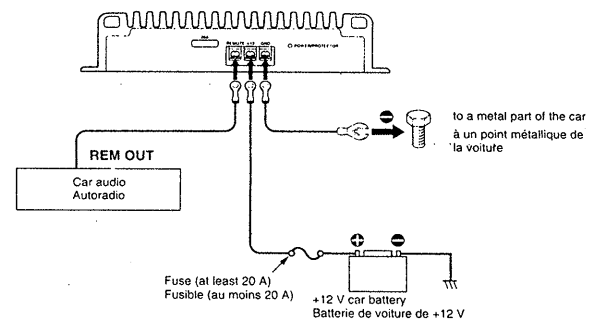
Fréquence de coupure unité: Hz	L* (bobine) unité: mH	C1/C2** (condensateur) unité: µF
50	12.7	800
80	8.2	500
100	6.2	400
130	4.7	300
150	4.2	270
200	3.3	200
260	2.4	150
400	1.6	100
600	1.0	68
800	0.8	50
1000	0.6	39

Notes
- When using passive crossover networks in a multi-speaker system, care must be taken as the speaker system's impedance should not be lower than that of the suitable impedance for this unit.
- When you are installing a 12 decibels/octave system in your car, the following points must be considered. In a 12 decibels/octave system where both a choke and a capacitor are used in series to form a circuit, a great care must be taken when they are connected. In such a circuit, there is going to be an increase in the current which by-passes the speaker with frequencies at around the crossover frequency. If audio signals are continued to be fed into the crossover frequency area, it may cause the amplifier to become abnormally hot or the fuse will be blown. Also if the speaker is disconnected, a series-resonant circuit will be formed by the choke and the capacitor. In this case, the impedance in the resonance area will decrease dramatically resulting in a short circuit like situation causing a damage to the amplifier. Therefore, make sure that a speaker is connected to such a circuit at all times.

4-Speaker System (High Level Input Connection)
Système à 4 haut-parleurs (Connexion d'entrée de haut niveau)



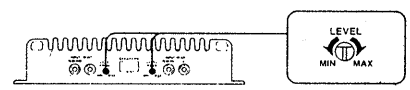
Power Connection Leads
Fils d'alimentation électrique



Notes on the power supply
- Connect the +12 volt power supply lead only after all the other leads have been connected.
- **Be sure to connect the ground lead of the unit securely to a metal part of the car. A loose connection may cause a malfunction of the amplifier.**
- Be sure to connect the remote control lead of the car audio to the remote lead.
- Use the power supply lead with a fuse attached (at least 20 amperes).
- Place the fuse in the power supply lead as close as possible to the car battery.
- During a full-power operation, the current of more than 20 amperes will run through the system. Therefore, make sure that the leads to be connected to the **+12** and **GND** terminals of this unit respectively must be larger than 14-Gauge (AWG-14) or with the sectional area of more than 2 mm².

Level Adjustment Control

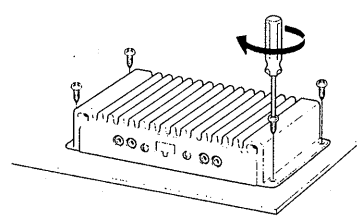
The input level can be varied with this control. Use it to adjust the input sound level when using source equipment of other manufacturers. Turn it to MAX when the output level of the cassette car audio or CD player seems low.



Installation

Before Installation

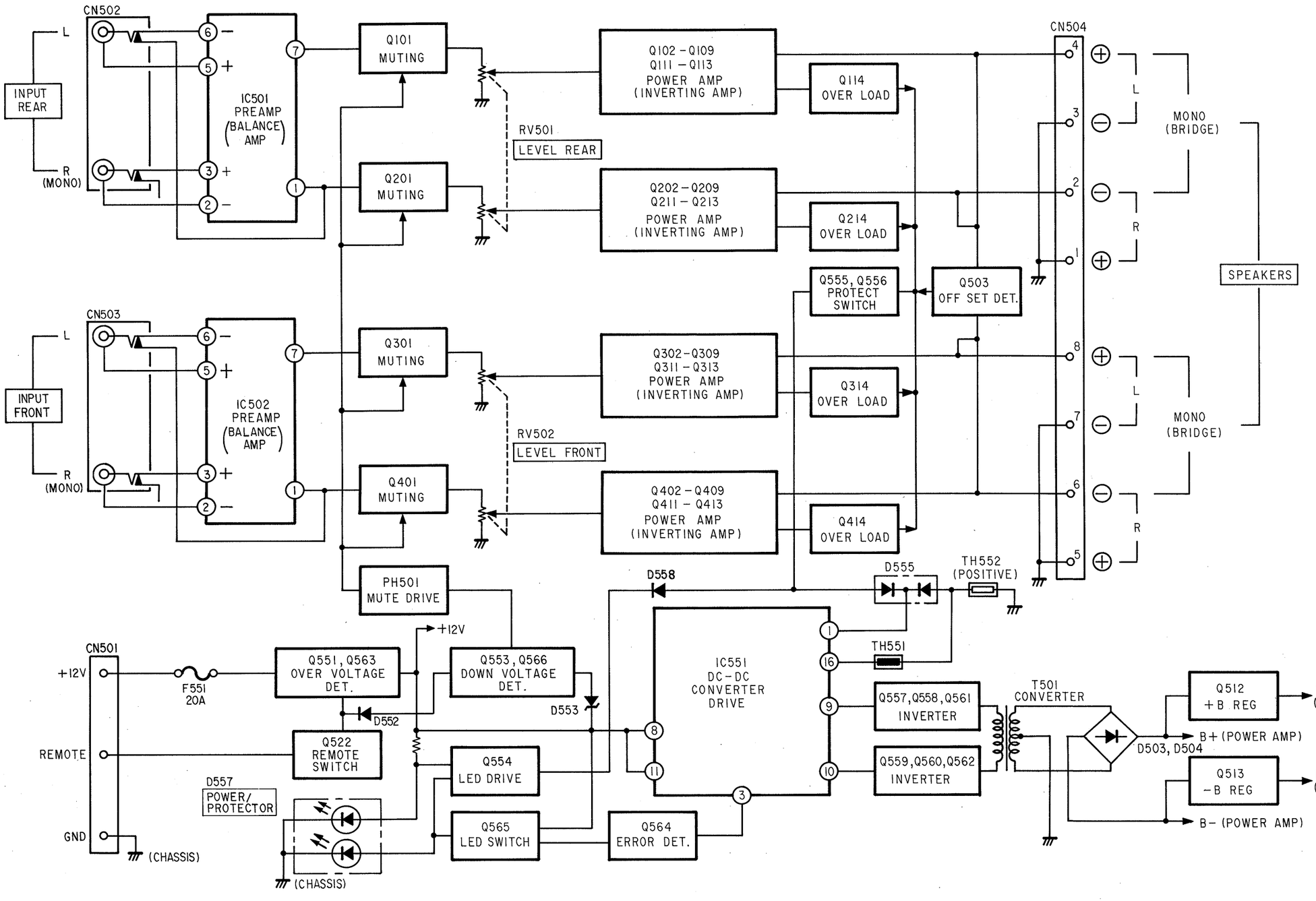
- Mount the unit either inside the trank room or under a seat.
- Choose the mounting location carefully so that the unit will not interfere with the normal driving functions of the driver and it will not be exposed to direct sunlight or hot air from the heater.
- Do not install the unit under the floor carpet, where the heat dissipation from the unit will be considerably impaired.



Firstly, use the template printed on the back of the carton to mark the positions of the four screw holes on the surface of the mounting board (not supplied). Then drill the holes whose diameter should be approximately 3 millimeters (mm) and mount the unit onto the board with the supplied mounting screws. The supplied mounting screws are 15 mm long each. Therefore, make sure that the mounting board is thicker than 15 mm.

SECTION 2
DIAGRAMS

2-1. BLOCK DIAGRAM



SEE ADDITIONAL INFORMATION

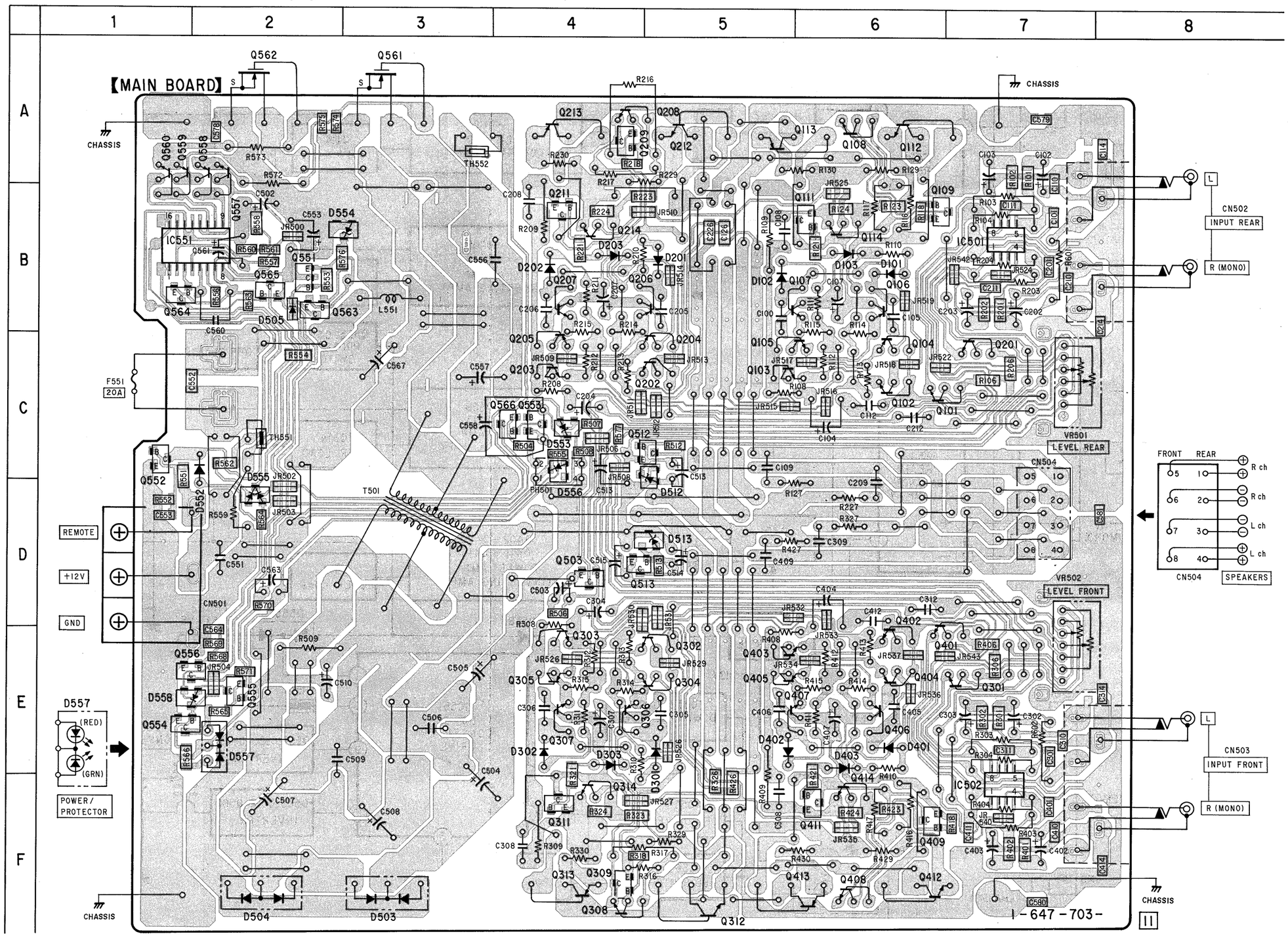
2-2. PRINTED WIRING BOARDS · See page 11 for Semiconductor Lead Layouts.

· Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D101	B-6	Q209	A-4
D102	B-5	Q211	B-4
D103	B-6	Q212	A-5
D201	B-5	Q213	A-4
D202	B-4	Q214	B-4
D203	B-4	Q301	E-7
D301	E-5	Q302	E-5
D302	E-4	Q303	E-4
D303	E-4	Q304	E-5
D401	E-6	Q305	E-4
D402	E-5	Q306	E-4
D403	E-6	Q307	E-4
D503	F-3	Q308	F-4
D504	F-2	Q309	F-4
D505	B-2	Q311	F-4
D512	C-5	Q312	F-5
D513	D-5	Q313	F-4
D552	C-2	Q314	F-4
D553	C-4	Q401	E-7
D554	B-3	Q402	E-6
D555	D-2	Q403	E-5
D556	C-4	Q404	E-6
D557	E-2	Q405	E-5
D558	E-2	Q406	E-6
		Q407	E-6
IC501	B-7	Q408	F-6
IC502	F-7	Q409	F-6
IC551	B-2	Q411	F-6
		Q412	F-6
Q101	C-7	Q413	F-6
Q102	C-6	Q414	F-6
Q103	C-5	Q503	D-4
Q104	C-6	Q512	C-5
Q105	C-5	Q513	D-4
Q106	B-6	Q551	B-2
Q107	B-6	Q552	C-1
Q108	A-6	Q553	C-4
Q109	B-6	Q554	E-1
Q111	B-6	Q555	E-2
Q112	A-6	Q556	E-2
Q113	A-5	Q557	A-2
Q114	B-6	Q558	A-2
Q201	C-7	Q559	A-1
Q202	C-5	Q560	A-1
Q203	C-4	Q561	A-3
Q204	C-5	Q562	A-2
Q205	C-4	Q563	B-2
Q206	B-4	Q564	B-1
Q207	B-4	Q565	B-2
Q208	A-4	Q566	C-4

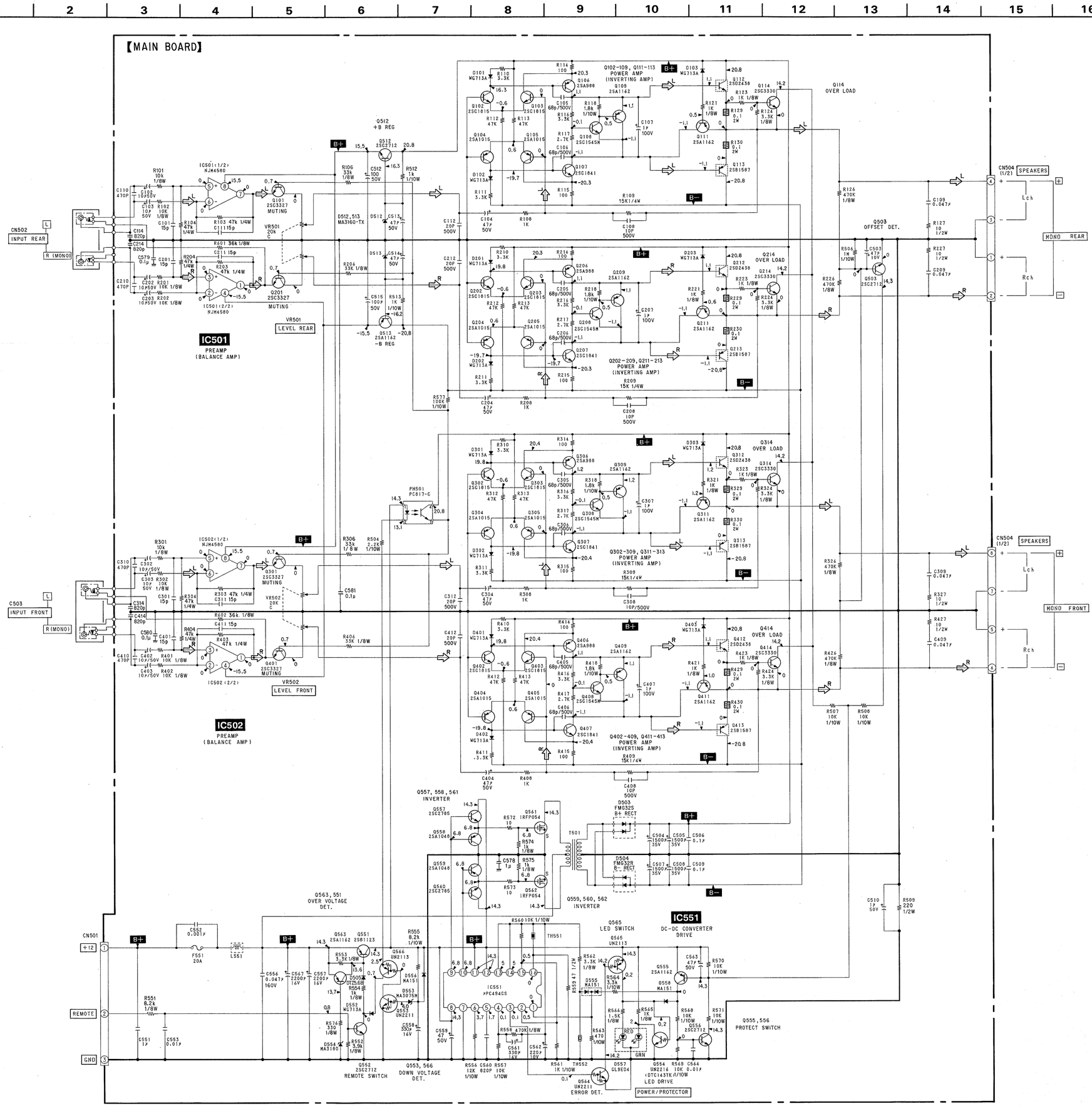
Note:

- ○—— : parts extracted from the compone side.
- ■ : parts mounted on the conductor side.
- ▒▒ : Pattern on the side which is seen.



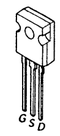
2-3. SCHEMATIC DIAGRAM

SEE ADDITIONAL INFORMATION



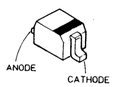
2-4. SEMICONDUCTOR LEAD LAYOUTS

IRFP054

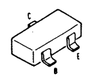


2SB1123T

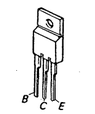
DTZ5.6B



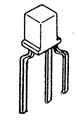
UN2113
2SA1162
2SC2712-G



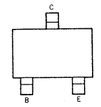
2SB1587-O
2SD2438-O



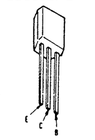
GL9ED4



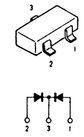
UN2211
UN2216



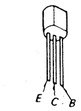
2SC1815-Y
2SC3327-B



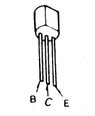
MA152WK



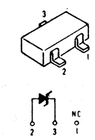
2SA988-PAFAEA
2SC1841-PAFAEA



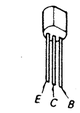
2SC3330T



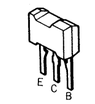
MA3075M-TX
MA3160M-TX



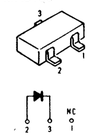
2SA1015-GR



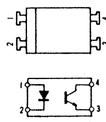
2SD1631-TPF2



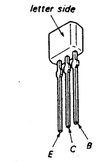
MA3180



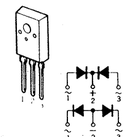
PC817-C



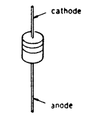
2SA1175-HFE
2SC2785-HFE



FMG-32R
FMG-32S

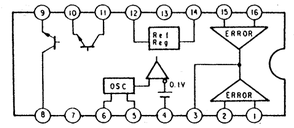


1SS119



· IC Block Diagrams

IC551 μPD494GS



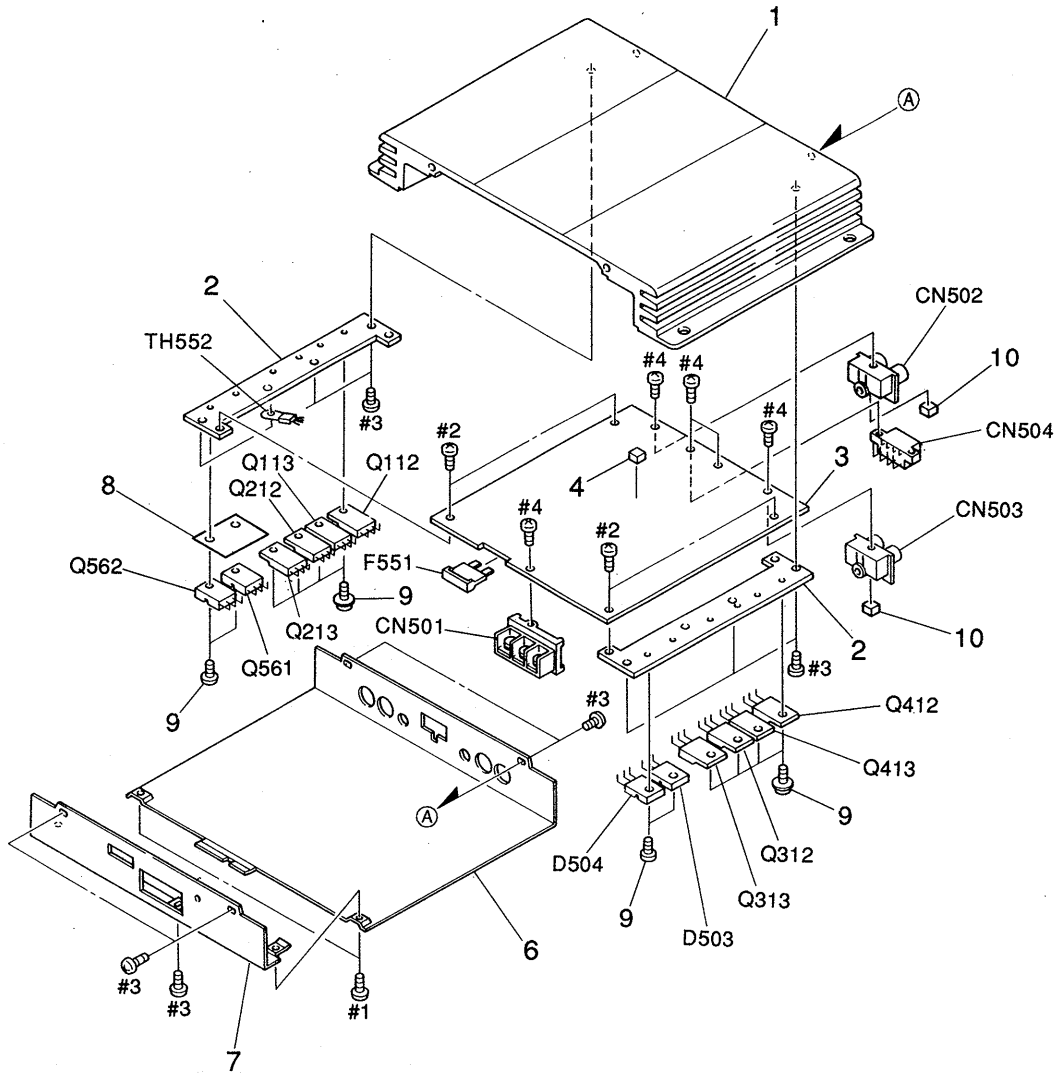
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/6W or less unless otherwise specified.
- : nonflammable resistor.
- B+ : B+ line.
- B− : B− line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from external power voltage terminal (CN501).
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM. (Input impedance 10MΩ) Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : L-ch
  : R-ch

SECTION 3
EXPLODED VIEW

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.



Ref. No.	Part No.	Description	Remark
1	3-386-899-01	HEAT SINK (XM-2540S)	
*	3-387-611-01	HEAT SINK (XM-2540)	
* 2	3-386-900-01	HEAT SINK, SUB	
* 3	A-3295-431-A	MAIN BOARD, COMPLETE	
4	9-911-841-XX	CUSHION (B)	
6	3-386-902-01	PANEL (D) (XM-2540)	
	3-386-902-11	PANEL (D) (XM-2540S)	
7	3-386-901-01	PANEL (C) (XM-2540)	
	3-386-901-11	PANEL (C) (XM-2540S)	
8	3-387-502-01	SHEET, INSULATING	
9	3-376-812-11	SCREW (WASHER)	
10	9-911-482-XX	CUSHION (F)	
CN501	1-537-477-11	TERMINAL BOARD (3P) (REMOTE/+12V/GND)	
CN502	1-580-281-11	JACK, PIN 2P (INPUT REAR)	
CN503	1-580-281-11	JACK, PIN 2P (INPUT FRONT)	
CN504	1-580-283-11	PIN, CONNECTOR (PC BOARD) 8P (SPEAKERS)	
D503	8-719-023-35	DIODE FMG-32S	
D504	8-719-023-34	DIODE FMG-32R	
F551	1-532-732-11	FUSE (GRADE TYPE) (AUTO FUSE) (20A)	
Q112	8-729-020-42	TRANSISTOR 2SD2438-O	
Q113	8-729-020-38	TRANSISTOR 2SB1587-O	
Q212	8-729-020-42	TRANSISTOR 2SD2438-O	
Q213	8-729-020-38	TRANSISTOR 2SB1587-O	
Q312	8-729-020-42	TRANSISTOR 2SD2438-O	
Q313	8-729-020-38	TRANSISTOR 2SB1587-O	
Q412	8-729-020-42	TRANSISTOR 2SD2438-O	
Q413	8-729-020-38	TRANSISTOR 2SB1587-O	
Q561	8-729-710-01	TRANSISTOR IRFP054	
Q562	8-729-710-01	TRANSISTOR IRFP054	
TH552	1-809-664-31	THERMISTOR, POSITIVE	

SEE ADDITIONAL INFORMATION

SECTION 4
ELECTRICAL PARTS LIST

MAIN

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Hardware (# mark) list is given in the last of this parts list.

Ref. No.	Part No.	Description			Remark
*	A-3295-431-A	MAIN BOARD, COMPLETE			
		**********			
	3-376-812-11	SCREW (WASHER) (DIA. 3X12)			
*	3-386-900-01	HEAT SINK, SUB			
	3-387-502-01	SHEET, INSULATING			
	7-682-648-09	SCREW (+BVW) (3X8) (SN), TAPPING			
	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIP			
		< CAPACITOR >			
C101	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C102	1-126-059-11	ELECT	10uF	20% 50V	
C103	1-126-059-11	ELECT	10uF	20% 50V	
C104	1-124-910-11	ELECT	47uF	20% 50V	
C105	1-107-036-91	MICA	68PF	5% 500V	
C106	1-107-036-91	MICA	68PF	5% 500V	
C107	1-124-791-11	ELECT	1.0uF	20% 100V	
C108	1-107-202-00	MICA	10PF	5% 500V	
C109	1-136-161-00	FILM	0.047uF	5% 50V	
C110	1-163-133-00	CERAMIC CHIP	470PF	5% 50V	
C111	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C112	1-107-209-00	MICA	20PF	5% 500V	
C114	1-163-139-00	CERAMIC CHIP	820PF	5% 50V	
C201	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C202	1-126-059-11	ELECT	10uF	20% 50V	
C203	1-126-059-11	ELECT	10uF	20% 50V	
C204	1-124-910-11	ELECT	47uF	20% 50V	
C205	1-107-036-91	MICA	68PF	5% 500V	
C206	1-107-036-91	MICA	68PF	5% 500V	
C207	1-124-791-11	ELECT	1.0uF	20% 100V	
C208	1-107-202-00	MICA	10PF	5% 500V	
C209	1-136-161-00	FILM	0.047uF	5% 50V	
C210	1-163-133-00	CERAMIC CHIP	470PF	5% 50V	
C211	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C212	1-107-209-00	MICA	20PF	5% 500V	
C214	1-163-139-00	CERAMIC CHIP	820PF	5% 50V	
C301	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C302	1-126-059-11	ELECT	10uF	20% 50V	
C303	1-126-059-11	ELECT	10uF	20% 50V	
C304	1-124-910-11	ELECT	47uF	20% 50V	
C305	1-107-036-91	MICA	68PF	5% 500V	
C306	1-107-036-91	MICA	68PF	5% 500V	
C307	1-124-791-11	ELECT	1.0uF	20% 100V	
C308	1-107-202-00	MICA	10PF	5% 500V	
C309	1-136-161-00	FILM	0.047uF	5% 50V	
C310	1-163-133-00	CERAMIC CHIP	470PF	5% 50V	
C311	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C312	1-107-209-00	MICA	20PF	5% 500V	
C314	1-163-139-00	CERAMIC CHIP	820PF	5% 50V	
C401	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C402	1-126-059-11	ELECT	10uF	20% 50V	
C403	1-126-059-11	ELECT	10uF	20% 50V	
C404	1-124-910-11	ELECT	47uF	20% 50V	
C405	1-107-036-91	MICA	68PF	5% 500V	
C406	1-107-036-91	MICA	68PF	5% 500V	
C407	1-124-791-11	ELECT	1.0uF	20% 100V	
C408	1-107-202-00	MICA	10PF	5% 500V	
C409	1-136-161-00	FILM	0.047uF	5% 50V	
C410	1-163-133-00	CERAMIC CHIP	470PF	5% 50V	
C411	1-163-097-00	CERAMIC CHIP	15PF	5% 50V	
C412	1-107-209-00	MICA	20PF	5% 500V	
C414	1-163-139-00	CERAMIC CHIP	820PF	5% 50V	
C503	1-124-126-00	ELECT	47uF	20% 10V	
C504	1-126-306-51	ELECT	1500uF	20% 35V	
C505	1-126-306-51	ELECT	1500uF	20% 35V	
C506	1-136-165-00	FILM	0.1uF	5% 50V	
C507	1-126-306-51	ELECT	1500uF	20% 35V	
C508	1-126-306-51	ELECT	1500uF	20% 35V	
C509	1-136-165-00	FILM	0.1uF	5% 50V	
C510	1-124-903-11	ELECT	1uF	20% 50V	
C512	1-124-122-11	ELECT	100uF	20% 50V	
C513	1-124-910-11	ELECT	47uF	20% 50V	
C514	1-124-910-11	ELECT	47uF	20% 50V	
C515	1-124-122-11	ELECT	100uF	20% 50V	
C551	1-136-177-00	FILM	1uF	5% 50V	
C552	1-163-205-00	CERAMIC CHIP	0.001uF	5% 50V	
C553	1-163-059-00	CERAMIC CHIP	0.01uF	10% 50V	
C556	1-136-961-11	FILM	0.047uF	10% 160V	
C557	1-128-531-11	ELECT	2200uF	20% 16V	
C558	1-124-119-00	ELECT	330uF	20% 16V	
C559	1-124-910-11	ELECT	47uF	20% 50V	
C560	1-130-470-00	MYLAR	820PF	5% 50V	
C561	1-124-119-00	ELECT	330uF	20% 16V	
C562	1-126-176-11	ELECT	220uF	20% 10V	
C563	1-124-910-11	ELECT	47uF	20% 50V	
C564	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C567	1-128-531-11	ELECT	2200uF	20% 16V	
C578	1-164-346-11	CERAMIC CHIP	1.0uF	16V	
C579	1-163-038-00	CERAMIC CHIP	0.1uF	25V	

MAIN

SEE ADDITIONAL INFORMATION

Ref.No.	Part No.	Description	Remark
C580	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C581	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
		< CONNECTOR >	
CN501	1-537-477-11	TERMINAL BOARD (3P) (REMOTE/+12V/GND)	
CN502	1-580-281-11	JACK, PIN 2P (INPUT REAR)	
CN503	1-580-281-11	JACK, PIN 2P (INPUT FRONT)	
CN504	1-580-283-11	PIN, CONNECTOR (PC BOARD) 8P (SPEAKERS)	
		< DIODE >	
D101	8-719-911-19	DIODE 1SS119	
D102	8-719-911-19	DIODE 1SS119	
D103	8-719-911-19	DIODE 1SS119	
D201	8-719-911-19	DIODE 1SS119	
D202	8-719-911-19	DIODE 1SS119	
D203	8-719-911-19	DIODE 1SS119	
D301	8-719-911-19	DIODE 1SS119	
D302	8-719-911-19	DIODE 1SS119	
D303	8-719-911-19	DIODE 1SS119	
D401	8-719-911-19	DIODE 1SS119	
D402	8-719-911-19	DIODE 1SS119	
D403	8-719-911-19	DIODE 1SS119	
D503	8-719-023-35	DIODE FMG-32S	
D504	8-719-023-34	DIODE FMG-32R	
D505	8-719-977-03	DIODE DTZ5.6B	
D512	8-719-402-65	DIODE MA3160M-TX	
D513	8-719-402-65	DIODE MA3160M-TX	
D552	8-719-911-19	DIODE 1SS119	
D553	8-719-401-82	DIODE MA3075M-TX	
D554	8-719-401-10	DIODE MA3180	
D555	8-719-400-18	DIODE MA152WK	
D556	8-719-400-18	DIODE MA152WK	
D557	8-719-989-31	DIODE GL9ED4	
D558	8-719-400-18	DIODE MA152WK	
		< PHOTO INTERRUPTER >	
PH501	8-719-927-74	DIODE PC817-C	
		< IC >	
IC501	8-759-711-82	IC NJM4580E	
IC502	8-759-711-82	IC NJM4580E	
IC551	8-759-144-88	IC uPC494GS	
		< JUMPER RESISTOR >	
JR500	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR502	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR503	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR504	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR506	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR508	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR509	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR510	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR511	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR512	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR513	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR514	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR515	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR516	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR517	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR518	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR519	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR522	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR524	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR525	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR526	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR527	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR528	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR529	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR530	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR531	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR532	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR533	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR534	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR535	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR536	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR537	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR540	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR542	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR543	1-216-296-00	METAL CHIP 0 5% 1/8W	
		< COIL >	
L551	1-424-638-11	COIL, CHOKE	
		< TRANSISTOR >	
Q101	8-729-203-49	TRANSISTOR 2SC3327-B	
Q102	8-729-281-52	TRANSISTOR 2SC1815-Y	
Q103	8-729-281-52	TRANSISTOR 2SC1815-Y	
Q104	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q105	8-729-201-53	TRANSISTOR 2SA1015-GR	
Q106	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q107	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q108	8-729-021-49	TRANSISTOR 2SD1631-TPF2	
Q109	8-729-216-22	TRANSISTOR 2SA1162-G	
Q111	8-729-216-22	TRANSISTOR 2SA1162-G	
Q112	8-729-020-42	TRANSISTOR 2SD2438-O	
Q113	8-729-020-38	TRANSISTOR 2SB1587-O	
Q114	8-729-820-24	TRANSISTOR 2SC3330-T	
Q201	8-729-203-49	TRANSISTOR 2SC3327-B	

SEE ADDITIONAL INFORMATION

MAIN

Ref.No.	Part No.	Description		Remark
Q202	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q203	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q204	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q205	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q206	8-729-140-82	TRANSISTOR	2SA988-PAFAEA	
Q207	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA	
Q208	8-729-021-49	TRANSISTOR	2SD1631-TPF2	
Q209	8-729-216-22	TRANSISTOR	2SA1162-G	
Q211	8-729-216-22	TRANSISTOR	2SA1162-G	
Q212	8-729-020-42	TRANSISTOR	2SD2438-O	
Q213	8-729-020-38	TRANSISTOR	2SB1587-O	
Q214	8-729-820-24	TRANSISTOR	2SC3330-T	
Q301	8-729-203-49	TRANSISTOR	2SC3327-B	
Q302	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q303	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q304	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q305	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q306	8-729-140-82	TRANSISTOR	2SA988-PAFAEA	
Q307	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA	
Q308	8-729-021-49	TRANSISTOR	2SD1631-TPF2	
Q309	8-729-216-22	TRANSISTOR	2SA1162-G	
Q311	8-729-216-22	TRANSISTOR	2SA1162-G	
Q312	8-729-020-42	TRANSISTOR	2SD2438-O	
Q313	8-729-020-38	TRANSISTOR	2SB1587-O	
Q314	8-729-820-24	TRANSISTOR	2SC3330-T	
Q401	8-729-203-49	TRANSISTOR	2SC3327-B	
Q402	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q403	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q404	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q405	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q406	8-729-140-82	TRANSISTOR	2SA988-PAFAEA	
Q407	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA	
Q408	8-729-021-49	TRANSISTOR	2SD1631-TPF2	
Q409	8-729-216-22	TRANSISTOR	2SA1162-G	
Q411	8-729-216-22	TRANSISTOR	2SA1162-G	
Q412	8-729-020-42	TRANSISTOR	2SD2438-O	
Q413	8-729-020-38	TRANSISTOR	2SB1587-O	
Q414	8-729-820-24	TRANSISTOR	2SC3330-T	
Q503	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q512	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q513	8-729-216-22	TRANSISTOR	2SA1162-G	
Q551	8-729-807-35	TRANSISTOR	2SB1123-T	
Q552	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q553	8-729-421-22	TRANSISTOR	UN2211	
Q554	8-729-424-67	TRANSISTOR	UN2216	
Q555	8-729-216-22	TRANSISTOR	2SA1162-G	
Q556	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q557	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q558	8-729-119-76	TRANSISTOR	2SA1175-HFE	
Q559	8-729-119-76	TRANSISTOR	2SA1175-HFE	
Q560	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q561	8-729-710-01	TRANSISTOR	IRFP054	
Q562	8-729-710-01	TRANSISTOR	IRFP054	
Q563	8-729-216-22	TRANSISTOR	2SA1162-G	
Q564	8-729-421-22	TRANSISTOR	UN2211	
Q565	8-729-424-18	TRANSISTOR	UN2113	
Q566	8-729-424-18	TRANSISTOR	UN2113	
		< RESISTOR >		
R101	1-260-008-11	CARBON MELF	10K 2% 1/8W	
R102	1-260-008-11	CARBON MELF	10K 2% 1/8W	
R103	1-249-465-11	CARBON	47K 5% 1/4W	
R104	1-249-465-11	CARBON	47K 5% 1/4W	
R106	1-216-234-00	METAL GLAZE	33K 5% 1/8W	
R108	1-259-428-11	CARBON	1K 5% 1/6W	
R109	1-249-460-11	CARBON	15K 5% 1/4W	
R110	1-259-440-11	CARBON	3.3K 5% 1/6W	
R111	1-259-440-11	CARBON	3.3K 5% 1/6W	
R112	1-259-468-11	CARBON	47K 5% 1/6W	
R113	1-259-468-11	CARBON	47K 5% 1/6W	
R114	1-259-404-11	CARBON	100 5% 1/6W	
R115	1-259-404-11	CARBON	100 5% 1/6W	
R116	1-259-440-11	CARBON	3.3K 5% 1/6W	
R117	1-259-438-81	CARBON	2.7K 5% 1/6W	
R118	1-216-055-00	METAL CHIP	1.8K 5% 1/10W	
R121	1-216-198-00	METAL CHIP	1K 5% 1/8W	
R123	1-216-198-00	METAL CHIP	1K 5% 1/8W	
R124	1-216-210-00	METAL GLAZE	3.3K 5% 1/8W	
R126	1-216-262-00	METAL GLAZE	470K 5% 1/8W	
R127	1-249-625-11	CARBON	10 5% 1/2W	
R129	1-217-611-00	RES, METAL PLATE	0.1 2W	
R130	1-217-611-00	RES, METAL PLATE	0.1 2W	
R201	1-260-008-11	CARBON MELF	10K 2% 1/8W	
R202	1-260-008-11	CARBON MELF	10K 2% 1/8W	
R203	1-249-465-11	CARBON	47K 5% 1/4W	
R204	1-249-465-11	CARBON	47K 5% 1/4W	
R206	1-216-234-00	METAL CHIP	33K 5% 1/8W	
R208	1-259-428-11	CARBON	1K 5% 1/6W	
R209	1-249-460-11	CARBON	15K 5% 1/4W	
R210	1-259-440-11	CARBON	3.3K 5% 1/6W	
R211	1-259-440-11	CARBON	3.3K 5% 1/6W	
R212	1-259-468-11	CARBON	47K 5% 1/6W	
R213	1-259-468-11	CARBON	47K 5% 1/6W	
R214	1-259-404-11	CARBON	100 5% 1/6W	
R215	1-259-404-11	CARBON	100 5% 1/6W	
R216	1-259-440-11	CARBON	3.3K 5% 1/6W	
R217	1-259-438-81	CARBON	2.7K 5% 1/6W	
R218	1-216-055-00	METAL CHIP	1.8K 5% 1/10W	
R221	1-216-198-00	METAL CHIP	1K 5% 1/8W	

MAIN

SEE ADDITIONAL INFORMATION

Ref.No.	Part No.	Description				Remark
R223	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R224	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R226	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R227	1-249-625-11	CARBON	10	5%	1/2W	
R229	1-217-611-00	RES, METAL PLATE 0.1			2W	
R230	1-217-611-00	RES, METAL PLATE 0.1			2W	
R301	1-260-008-11	CARBON MELF	10K	2%	1/8W	
R302	1-260-008-11	CARBON MELF	10K	2%	1/8W	
R303	1-249-465-11	CARBON	47K	5%	1/4W	
R304	1-249-465-11	CARBON	47K	5%	1/4W	
R306	1-216-234-00	METAL CHIP	33K	5%	1/8W	
R308	1-259-428-11	CARBON	1K	5%	1/6W	
R309	1-249-460-11	CARBON	15K	5%	1/4W	
R310	1-259-440-11	CARBON	3.3K	5%	1/6W	
R311	1-259-440-11	CARBON	3.3K	5%	1/6W	
R312	1-259-468-11	CARBON	47K	5%	1/6W	
R313	1-259-468-11	CARBON	47K	5%	1/6W	
R314	1-259-404-11	CARBON	100	5%	1/6W	
R315	1-259-404-11	CARBON	100	5%	1/6W	
R316	1-259-440-11	CARBON	3.3K	5%	1/6W	
R317	1-259-438-81	CARBON	2.7K	5%	1/6W	
R318	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R321	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R323	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R324	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R326	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R327	1-249-625-11	CARBON	10	5%	1/2W	
R329	1-217-611-00	RES, METAL PLATE 0.1			2W	
R330	1-217-611-00	RES, METAL PLATE 0.1			2W	
R401	1-260-008-11	CARBON MELF	10K	2%	1/8W	
R402	1-260-008-11	CARBON MELF	10K	2%	1/8W	
R403	1-249-465-11	CARBON	47K	5%	1/4W	
R404	1-249-465-11	CARBON	47K	5%	1/4W	
R406	1-216-234-00	METAL GLAZE	33K	5%	1/8W	
R408	1-259-428-11	CARBON	1K	5%	1/6W	
R409	1-249-460-11	CARBON	15K	5%	1/4W	
R410	1-259-440-11	CARBON	3.3K	5%	1/6W	
R411	1-259-440-11	CARBON	3.3K	5%	1/6W	
R412	1-259-468-11	CARBON	47K	5%	1/6W	
R413	1-259-468-11	CARBON	47K	5%	1/6W	
R414	1-259-404-11	CARBON	100	5%	1/6W	
R415	1-259-404-11	CARBON	100	5%	1/6W	
R416	1-259-440-11	CARBON	3.3K	5%	1/6W	
R417	1-259-438-81	CARBON	2.7K	5%	1/6W	
R418	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R421	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R423	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R424	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R426	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R427	1-249-625-11	CARBON	10	5%	1/2W	
R429	1-217-611-00	RES, METAL PLATE 0.1			2W	
R430	1-217-611-00	RES, METAL PLATE 0.1			2W	
R504	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R506	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R507	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R508	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R509	1-260-091-11	CARBON	220	5%	1/2W	
R512	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R513	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R551	1-216-220-00	METAL GLAZE	8.2K	5%	1/8W	
R552	1-216-212-00	METAL GLAZE	3.9K	5%	1/8W	
R553	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R554	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R555	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R556	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R557	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R558	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R559	1-260-083-11	CARBON	47	5%	1/2W	
R560	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R561	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R562	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R563	1-216-041-00	METAL CHIP	470	5%	1/10W	
R564	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R565	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R566	1-216-202-00	METAL GLAZE	1.5K	5%	1/8W	
R568	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R569	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R570	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R571	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R572	1-259-380-11	CARBON	10	5%	1/6W	
R573	1-259-380-11	CARBON	10	5%	1/6W	
R574	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R575	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R576	1-216-186-00	METAL GLAZE	330	5%	1/8W	
R577	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R601	1-249-589-81	CARBON	36K	5%	1/4W	
R602	1-249-589-81	CARBON	36K	5%	1/4W	
		< TRANSFORMER >				
T501	1-423-631-21	TRANSFORMER, DC/DC CONVERTER				
		< THERMISTORR >				
TH551	1-808-779-11	THERMISTOR				
TH552	1-809-664-31	THERMISTOR, POSITIVE				
		< VARIABLE RESISTORR >				
VR501	1-238-817-11	RES, VAR, CARBON 20K/20K				
VR502	1-238-817-11	RES, VAR, CARBON 20K/20K				

****

SEE ADDITIONAL INFORMATION

Ref.No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
F551	1-532-732-11	FUSE (GRADE TYPE) (AUTO FUSE) (20A)	
		**********	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-751-081-11	CORD (WITH CONNECTOR) (RED) (SPEAKER INPUT)	
	1-751-081-21	CORD (WITH CONNECTOR) (WHITE) (SPEAKER INPUT)	
	1-751-082-11	CORD (WITH CONNECTOR) (SPEAKER OUTPUT)	
*	3-388-157-01	INDIVIDUAL CARTON (XM-2540)	
*	3-388-159-01	CUSHION, CORRUGATED FIBERBOARD (XM-2540)	
*	3-388-207-01	INDIVIDUAL CARTON (XM-2540S)	
*	3-388-209-01	CUSHION, CORRUGATED FIBERBOARD (XM-2540S)	
	3-756-566-11	MANUAL, INSTRUCTION (XM-2540S) (ENGLISH, GERMANY, SPANISH, CHINESE)	
	3-756-566-41	MANUAL, INSTRUCTION (XM-2540S:AEP) (FRENCH, DUTCH, SWEDISH, ITALIAN, PORTUGUESE)	
	3-756-568-21	MANUAL, INSTRUCTION (XM-2540) (ENGLISH, FRENCH)	
	7-685-162-01	SCREW (4X14), (+) (B) TAPPING	
		**********	

Ref.No.	Part No.	Description	Remark
		HARDWARE LIST	
		**********	
#1	7-682-547-04	SCREW +BVTT 3X6 (S) (XM-2540S)	
#1	7-682-547-09	SCREW +BVTT 3X6 (S) (XM-2540)	
#2	7-682-648-09	SCREW (+BVW) (3X8) (SN), TAPPING	
#3	7-685-546-14	SCREW +BTP 3X8 TYPE2 N-S (XM-2540S)	
#3	7-685-646-79	SCREW +BTP 3X8 TYPE2 N-S (XM-2540)	
#4	7-685-646-79	SCREW +BTP 3X8 TYPE2 N-8	

REVISED

9-957-588-11
(Including 9-957-588-91)

Sony Corporation
Mobile Electronics Group

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XM-2540/2540S

SONY

SERVICE MANUAL

US Model
Canadian Model
XM-2540
AEP Model
UK Model
E Model
XM-2540S

SUPPLEMENT-1

File this Supplement with the Service Manual.

Subject : Change of the Main Board

The last digit of the number for Main Board has been changed to-12.
The supplement-1 of this Service manual contains revised PRINTED WIRING BOARD, SCHEMATIC DIAGRAM and ELECTRICAL PARTS LIST.

CORRECTION

Please correct your Service Manual.

		CORRECT			INCORRECT		
Page	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
14	D512	8-719-402-65	DIODE MA3160M-TX		8-719-106-98	DIODE RD16M-B2	
14	D513	8-719-402-65	DIODE MA3160M-TX		8-719-106-98	DIODE RD16M-B2	
14	D553	8-719-401-82	DIODE MA3075-TX		8-719-106-23	DIODE RD7.5M-B2	
14	Q112	8-729-020-42	TRANSISTOR 2SD2438-O		8-729-020-43	TRANSISTOR 2SD2438-P	
14	Q113	8-729-020-38	TRANSISTOR 2SB1587-O		8-729-020-39	TRANSISTOR 2SB1587-P	
15	Q212	8-729-020-42	TRANSISTOR 2SD2438-O		8-729-020-43	TRANSISTOR 2SD2438-P	
15	Q213	8-729-020-38	TRANSISTOR 2SB1587-O		8-729-020-39	TRANSISTOR 2SB1587-P	
15	Q312	8-729-020-42	TRANSISTOR 2SD2438-O		8-729-020-43	TRANSISTOR 2SD2438-P	
15	Q313	8-729-020-38	TRANSISTOR 2SB1587-O		8-729-020-39	TRANSISTOR 2SB1587-P	
15	Q412	8-729-020-42	TRANSISTOR 2SD2438-O		8-729-020-43	TRANSISTOR 2SD2438-P	
15	Q413	8-729-020-38	TRANSISTOR 2SB1587-O		8-729-020-39	TRANSISTOR 2SB1587-P	

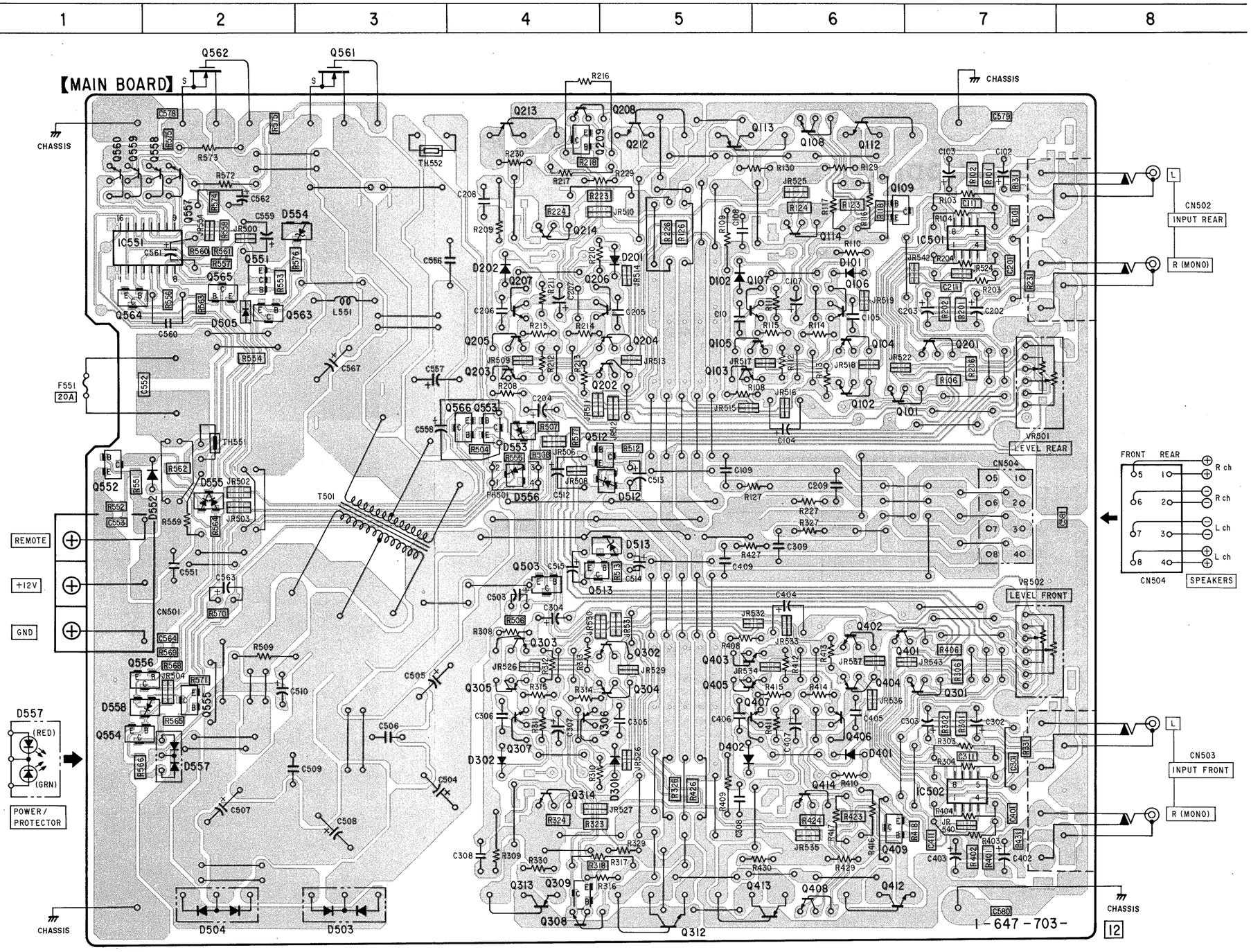
PRINTED WIRING BOARD

· Semiconductor Location

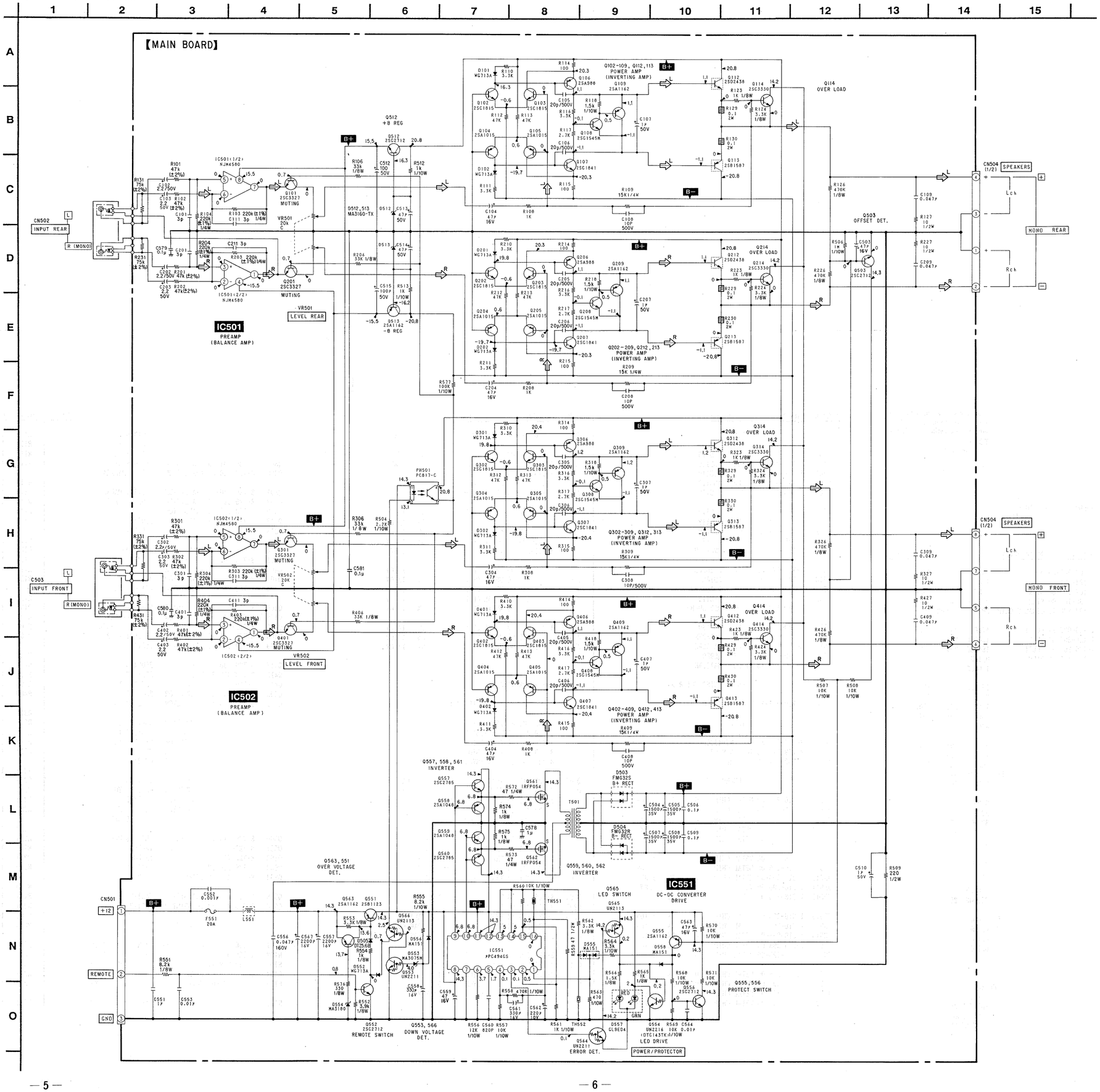
Ref. No.	Location	Ref. No.	Location
D101	B-6	Q212	A-5
D102	B-5	Q213	A-4
D201	B-5	Q214	B-4
D202	B-4	Q301	E-7
D301	E-5	Q302	E-5
D302	E-4	Q303	E-4
D401	E-6	Q304	E-5
D402	E-5	Q305	E-4
D503	F-3	Q306	E-4
D504	F-2	Q307	E-4
D505	B-2	Q308	F-4
D512	C-5	Q309	F-4
D513	D-5	Q312	F-5
D552	C-2	Q313	F-4
D553	C-4	Q314	F-4
D554	B-3	Q401	E-7
D555	D-2	Q402	E-6
D556	C-4	Q403	E-5
D557	E-2	Q404	E-6
D558	E-1	Q405	E-5
		Q406	E-6
IC501	B-7	Q407	E-6
IC502	F-7	Q408	F-6
IC551	B-2	Q409	F-6
		Q412	F-6
Q101	C-7	Q413	F-6
Q102	C-6	Q414	F-6
Q103	C-5	Q503	D-4
Q104	C-6	Q512	C-5
Q105	C-5	Q513	D-4
Q106	B-6	Q551	B-2
Q107	B-6	Q552	C-1
Q108	A-6	Q553	C-4
Q109	B-6	Q554	E-1
Q112	A-6	Q555	E-2
Q113	A-5	Q556	E-2
Q114	B-6	Q557	A-2
Q201	C-7	Q558	A-2
Q202	C-5	Q559	A-1
Q203	C-4	Q560	A-1
Q204	C-5	Q561	A-3
Q205	C-4	Q562	A-2
Q206	B-4	Q563	B-2
Q207	B-4	Q564	B-1
Q208	A-4	Q565	B-2
Q209	A-4	Q566	C-4

Note:

- ○—— : parts extracted from the components side.
- ▒▒ : Pattern on the side which is seen.
- Notes on chip component replacement
  - Never reuse a disconnected chip component.
  - Notice that the minus side of a tantalum capacitor may be damaged by heat.

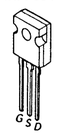


SCHEMATIC DIAGRAM



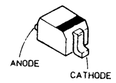
SEMICONDUCTOR LEAD LAYOUTS

IRFP054



2SB1123T

DTZ5.6B



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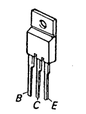
2SC2712-G

2SB1587-O
2SD2438-O



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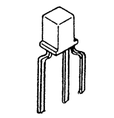
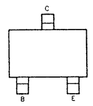
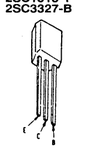


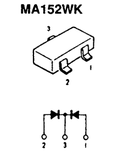
UN2211
UN2216



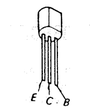
2SC1815-Y
2SC3327-B



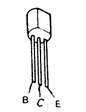
MA152WK



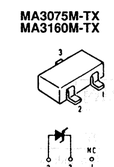
2SA988-PAFAEA
2SC1841-PAFAEA



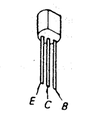
2SC3330T



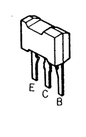
MA3075M-TX
MA3160M-TX



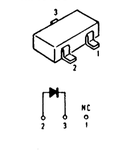
2SA1015-GR



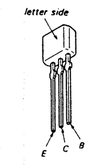
2SD1631-TPF2



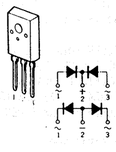
MA3180



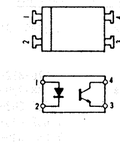
2SA1175-HFE
2SC2785-HFE



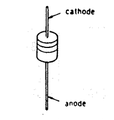
FMG-32R
FMG-32S



PC817-C

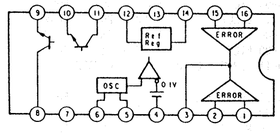


1SS119



· IC Block Diagrams

IC551 μPD494GS



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- : nonflammable resistor.
- B+ : B+ line.
- B− : B− line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from external power voltage terminal (CN501).
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM. (Input impedance 10MΩ) Voltage variations may be noted due to normal production tolerances.
- Signal path.
  - : L-ch
  - : R-ch

MAIN

ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remark
*	A-3295-431-A	MAIN BOARD, COMPLETE			
		**********			
	3-376-812-11	SCREW (DIA. 3X12)			
*	3-386-900-01	HEAT SINK, SUB			
	3-387-502-01	SHEET, INSULATING			
	7-682-648-09	SCREW (+BVW)(3X8)(SN), TAPPING			
	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIP			
		< CAPACITOR >			
C101	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C102	1-123-381-00	ELECT	2.2uF	20% 100V	
C103	1-123-381-00	ELECT	2.2uF	20% 100V	
C104	1-124-910-11	ELECT	47uF	20% 50V	
C105	1-107-209-00	MICA	20PF	5% 500V	
C106	1-107-209-00	MICA	20PF	5% 500V	
C107	1-124-791-11	ELECT	1.0uF	20% 100V	
C108	1-107-202-00	MICA	10PF	5% 500V	
C109	1-136-161-00	FILM	0.047uF	5% 50V	
C111	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C201	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C202	1-123-381-00	ELECT	2.2uF	20% 100V	
C203	1-123-381-00	ELECT	2.2uF	20% 100V	
C204	1-124-910-11	ELECT	47uF	20% 50V	
C205	1-107-209-00	MICA	20PF	5% 500V	
C206	1-107-209-00	MICA	20PF	5% 500V	
C207	1-124-791-11	ELECT	1.0uF	20% 100V	
C208	1-107-202-00	MICA	10PF	5% 500V	
C209	1-136-161-00	FILM	0.047uF	5% 50V	
C211	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C301	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C302	1-123-381-00	ELECT	2.2uF	20% 100V	
C303	1-123-381-00	ELECT	2.2uF	20% 100V	
C304	1-124-910-11	ELECT	47uF	20% 50V	
C305	1-107-209-00	MICA	20PF	5% 500V	
C306	1-107-209-00	MICA	20PF	5% 500V	
C307	1-124-791-11	ELECT	1.0uF	20% 100V	
C308	1-107-202-00	MICA	10PF	5% 500V	
C309	1-136-161-00	FILM	0.047uF	5% 50V	
C311	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C401	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C402	1-123-381-00	ELECT	2.2uF	20% 100V	
C403	1-123-381-00	ELECT	2.2uF	20% 100V	
C404	1-124-910-11	ELECT	47uF	20% 50V	
C405	1-107-209-00	MICA	20PF	5% 500V	
C406	1-107-209-00	MICA	20PF	5% 500V	
C407	1-124-791-11	ELECT	1.0uF	20% 100V	
C408	1-107-202-00	MICA	10PF	5% 500V	
C409	1-136-161-00	FILM	0.047uF	5% 50V	
C411	1-163-220-11	CERAMIC CHIP	3PF	0.25PF 50V	
C503	1-126-022-11	ELECT	47uF	20% 16V	
C504	1-126-306-51	ELECT	1500uF	20% 35V	
C505	1-126-306-51	ELECT	1500uF	20% 35V	
C506	1-136-165-00	FILM	0.1uF	5% 50V	
C507	1-126-306-51	ELECT	1500uF	20% 35V	
C508	1-126-306-51	ELECT	1500uF	20% 35V	
C509	1-136-165-00	FILM	0.1uF	5% 50V	
C510	1-124-791-11	ELECT	1uF	20% 100V	
C512	1-124-122-11	ELECT	100uF	20% 50V	
C513	1-126-022-11	ELECT	47uF	20% 16V	
C514	1-126-022-11	ELECT	47uF	20% 16V	
C515	1-124-122-11	ELECT	100uF	20% 50V	
C551	1-136-177-00	FILM	1uF	5% 50V	
C552	1-163-205-00	CERAMIC CHIP	0.001uF	5% 50V	
C553	1-163-059-00	CERAMIC CHIP	0.01uF	10% 50V	
C556	1-136-961-11	FILM	0.047uF	10% 160V	
C557	1-128-531-11	ELECT	2200uF	20% 16V	
C558	1-124-119-00	ELECT	330uF	20% 16V	
C559	1-124-910-11	ELECT	47uF	20% 50V	
C560	1-130-470-00	MYLAR	820PF	5% 50V	
C561	1-124-119-00	ELECT	330uF	20% 16V	
C562	1-126-176-11	ELECT	220uF	20% 10V	
C563	1-126-022-11	ELECT	47uF	20% 16V	
C564	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C567	1-128-531-11	ELECT	2200uF	20% 16V	
C578	1-164-346-11	CERAMIC CHIP	1.0uF	16V	
C579	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C580	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C581	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
		< CONNECTOR >			
CN501	1-537-477-11	TERMINAL BOARD (3P) (REMOTE/+12V/GND)			
CN502	1-580-281-11	JACK, PIN 2P (INPUT REAR)			
CN503	1-580-281-11	JACK, PIN 2P (INPUT FRONT)			
CN504	1-580-283-11	PIN, CONNECTOR (PC BOARD) 8P (SPEAKERS)			

Ref. No.	Part No.	Description				Remark
		< DIODE >				
D101	8-719-911-19	DIODE	1SS119			
D102	8-719-911-19	DIODE	1SS119			
D201	8-719-911-19	DIODE	1SS119			
D202	8-719-911-19	DIODE	1SS119			
D301	8-719-911-19	DIODE	1SS119			
D302	8-719-911-19	DIODE	1SS119			
D401	8-719-911-19	DIODE	1SS119			
D402	8-719-911-19	DIODE	1SS119			
D503	8-719-023-35	DIODE	FMG-32S			
D504	8-719-023-34	DIODE	FMG-32R			
D505	8-719-977-03	DIODE	DTZ5.6B			
D512	8-719-106-98	DIODE	RD16M-B2			
D513	8-719-106-98	DIODE	RD16M-B2			
D552	8-719-911-19	DIODE	1SS119			
D553	8-719-106-23	DIODE	RD7.5M-B2			
D554	8-719-401-10	DIODE	MA3180			
D555	8-719-400-18	DIODE	MA152WK			
D556	8-719-400-18	DIODE	MA152WK			
D557	8-719-989-31	DIODE	GL9ED4			
D558	8-719-400-18	DIODE	MA152WK			
		< PHOTO INTERRUPTER >				
PH501	8-719-927-74	DIODE	PC817-C			
		< IC >				
IC501	8-759-711-82	IC	NJM4580E			
IC502	8-759-711-82	IC	NJM4580E			
IC551	8-759-144-88	IC	uPC494GS			
		< JUMPER RESISTOR >				
JR500	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR502	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR503	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR504	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR506	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR508	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR509	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR510	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR511	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR512	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR513	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR514	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR515	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR516	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR517	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR518	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR519	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR522	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR524	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR525	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR526	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR527	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR528	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR529	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR530	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR531	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR532	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR533	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR534	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR535	1-216-296-00	METAL CHIP	0	5%	1/8W	
JR536	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR537	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR540	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR541	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR542	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR543	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR544	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR545	1-216-295-00	METAL CHIP	0	5%	1/10W	
		< COIL >				
L551	1-424-638-11	COIL, CHOKE				
		< TRANSISTOR >				
Q101	8-729-203-49	TRANSISTOR	2SC3327-B			
Q102	8-729-281-52	TRANSISTOR	2SC1815-Y			
Q103	8-729-281-52	TRANSISTOR	2SC1815-Y			
Q104	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q105	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q106	8-729-140-82	TRANSISTOR	2SA988-PAFAEA			
Q107	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA			
Q108	8-729-021-49	TRANSISTOR	2SD1631-TPF2			
Q109	8-729-216-22	TRANSISTOR	2SA1162-G			
Q112	8-729-020-43	TRANSISTOR	2SD2438-P			
Q113	8-729-020-39	TRANSISTOR	2SB1587-P			
Q114	8-729-820-24	TRANSISTOR	2SC3330-T			
Q201	8-729-203-49	TRANSISTOR	2SC3327-B			
Q202	8-729-281-52	TRANSISTOR	2SC1815-Y			
Q203	8-729-281-52	TRANSISTOR	2SC1815-Y			
Q204	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q205	8-729-201-53	TRANSISTOR	2SA1015-GR			
Q206	8-729-140-82	TRANSISTOR	2SA988-PAFAEA			
Q207	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA			
Q208	8-729-021-49	TRANSISTOR	2SD1631-TPF2			
Q209	8-729-216-22	TRANSISTOR	2SA1162-G			
Q212	8-729-020-43	TRANSISTOR	2SD2438-P			
Q213	8-729-020-39	TRANSISTOR	2SB1587-P			
Q214	8-729-820-24	TRANSISTOR	2SC3330-T			
Q301	8-729-203-49	TRANSISTOR	2SC3327-B			

MAIN

Ref.No.	Part No.	Description		Remark
Q302	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q303	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q304	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q305	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q306	8-729-140-82	TRANSISTOR	2SA988-PAFAEA	
Q307	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA	
Q308	8-729-021-49	TRANSISTOR	2SD1631-TPF2	
Q309	8-729-216-22	TRANSISTOR	2SA1162-G	
Q312	8-729-020-43	TRANSISTOR	2SD2438-P	
Q313	8-729-020-39	TRANSISTOR	2SB1587-P	
Q314	8-729-820-24	TRANSISTOR	2SC3330-T	
Q401	8-729-203-49	TRANSISTOR	2SC3327-B	
Q402	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q403	8-729-281-52	TRANSISTOR	2SC1815-Y	
Q404	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q405	8-729-201-53	TRANSISTOR	2SA1015-GR	
Q406	8-729-140-82	TRANSISTOR	2SA988-PAFAEA	
Q407	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA	
Q408	8-729-021-49	TRANSISTOR	2SD1631-TPF2	
Q409	8-729-216-22	TRANSISTOR	2SA1162-G	
Q412	8-729-020-43	TRANSISTOR	2SD2438-P	
Q413	8-729-020-39	TRANSISTOR	2SB1587-P	
Q414	8-729-820-24	TRANSISTOR	2SC3330-T	
Q503	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q512	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q513	8-729-216-22	TRANSISTOR	2SA1162-G	
Q551	8-729-807-35	TRANSISTOR	2SB1123-T	
Q552	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q553	8-729-421-22	TRANSISTOR	UN2211	
Q554	8-729-424-67	TRANSISTOR	UN2216	
Q555	8-729-216-22	TRANSISTOR	2SA1162-G	
Q556	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q557	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q558	8-729-119-76	TRANSISTOR	2SA1175-HFE	
Q559	8-729-119-76	TRANSISTOR	2SA1175-HFE	
Q560	8-729-119-78	TRANSISTOR	2SC2785-HFE	
Q561	8-729-710-01	TRANSISTOR	IRFP054	
Q562	8-729-710-01	TRANSISTOR	IRFP054	
Q563	8-729-216-22	TRANSISTOR	2SA1162-G	
Q564	8-729-421-22	TRANSISTOR	UN2211	
Q565	8-729-424-18	TRANSISTOR	UN2113	
Q566	8-729-424-18	TRANSISTOR	UN2113	

< RESISTOR >

Ref.No.	Part No.	Description				Remark
R101	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R102	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R103	1-249-979-11	CARBON	220K	1%	1/4W	
R104	1-249-979-11	CARBON	220K	1%	1/4W	
R106	1-216-234-00	METAL GLAZE	33K	5%	1/8W	
R108	1-259-428-11	CARBON	1K	5%	1/6W	
R109	1-249-460-11	CARBON	15K	5%	1/4W	
R110	1-259-440-11	CARBON	3.3K	5%	1/6W	
R111	1-259-440-11	CARBON	3.3K	5%	1/6W	
R112	1-259-468-11	CARBON	47K	5%	1/6W	
R113	1-259-468-11	CARBON	47K	5%	1/6W	
R114	1-259-404-11	CARBON	100	5%	1/6W	
R115	1-259-404-11	CARBON	100	5%	1/6W	
R116	1-259-440-11	CARBON	3.3K	5%	1/6W	
R117	1-259-438-11	CARBON	2.7K	5%	1/6W	
R118	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R123	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R124	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R126	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R127	1-247-727-11	CARBON	10	5%	1/2W	
R129	1-217-611-00	RES, METAL PLATE 0.1			2W	
R130	1-217-611-00	RES, METAL PLATE 0.1			2W	
R131	1-259-945-11	CARBON MELF	75K	2%	1/8W	
R201	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R202	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R203	1-249-979-11	CARBON	220K	1%	1/4W	
R204	1-249-979-11	CARBON	220K	1%	1/4W	
R206	1-216-234-00	METAL CHIP	33K	5%	1/8W	
R208	1-259-428-11	CARBON	1K	5%	1/6W	
R209	1-249-460-11	CARBON	15K	5%	1/4W	
R210	1-259-440-11	CARBON	3.3K	5%	1/6W	
R211	1-259-440-11	CARBON	3.3K	5%	1/6W	
R212	1-259-468-11	CARBON	47K	5%	1/6W	
R213	1-259-468-11	CARBON	47K	5%	1/6W	
R214	1-259-404-11	CARBON	100	5%	1/6W	
R215	1-259-404-11	CARBON	100	5%	1/6W	
R216	1-259-440-11	CARBON	3.3K	5%	1/6W	
R217	1-259-438-11	CARBON	2.7K	5%	1/6W	
R218	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R221	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R223	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R224	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R226	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R227	1-247-727-11	CARBON	10	5%	1/2W	
R229	1-217-611-00	RES, METAL PLATE 0.1			2W	
R230	1-217-611-00	RES, METAL PLATE 0.1			2W	
R231	1-259-945-11	CARBON MELF	75K	2%	1/8W	
R301	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R302	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R303	1-249-979-11	CARBON	220K	1%	1/4W	
R304	1-249-979-11	CARBON	220K	1%	1/4W	
R306	1-216-234-00	METAL CHIP	33K	5%	1/8W	
R308	1-259-428-11	CARBON	1K	5%	1/6W	
R309	1-249-460-11	CARBON	15K	5%	1/4W	
R310	1-259-440-11	CARBON	3.3K	5%	1/6W	
R311	1-259-440-11	CARBON	3.3K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R312	1-259-468-11	CARBON	47K	5%	1/6W	
R313	1-259-468-11	CARBON	47K	5%	1/6W	
R314	1-259-404-11	CARBON	100	5%	1/6W	
R315	1-259-404-11	CARBON	100	5%	1/6W	
R316	1-259-440-11	CARBON	3.3K	5%	1/6W	
R317	1-259-438-11	CARBON	2.7K	5%	1/6W	
R318	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R323	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R324	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R326	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R327	1-247-727-11	CARBON	10	5%	1/2W	
R329	1-217-611-00	RES, METAL PLATE 0.1			2W	
R330	1-217-611-00	RES, METAL PLATE 0.1			2W	
R331	1-259-945-11	CARBON MELF	75K	2%	1/8W	
R401	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R402	1-260-016-11	CARBON MELF	47K	2%	1/8W	
R403	1-249-979-11	CARBON	220K	1%	1/4W	
R404	1-249-979-11	CARBON	220K	1%	1/4W	
R406	1-216-234-00	METAL GLAZE	33K	5%	1/8W	
R408	1-259-428-11	CARBON	1K	5%	1/6W	
R409	1-249-460-11	CARBON	15K	5%	1/4W	
R410	1-259-440-11	CARBON	3.3K	5%	1/6W	
R411	1-259-440-11	CARBON	3.3K	5%	1/6W	
R412	1-259-468-11	CARBON	47K	5%	1/6W	
R413	1-259-468-11	CARBON	47K	5%	1/6W	
R414	1-259-404-11	CARBON	100	5%	1/6W	
R415	1-259-404-11	CARBON	100	5%	1/6W	
R416	1-259-440-11	CARBON	3.3K	5%	1/6W	
R417	1-259-438-11	CARBON	2.7K	5%	1/6W	
R418	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R423	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R424	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R426	1-216-262-00	METAL GLAZE	470K	5%	1/8W	
R427	1-247-727-11	CARBON	10	5%	1/2W	
R429	1-217-611-00	RES, METAL PLATE 0.1			2W	
R430	1-217-611-00	RES, METAL PLATE 0.1			2W	
R431	1-259-945-11	CARBON MELF	75K	2%	1/8W	
R504	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R506	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R507	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R508	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R509	1-260-091-11	CARBON	220	5%	1/2W	
R512	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R513	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R551	1-216-220-00	METAL GLAZE	8.2K	5%	1/8W	
R552	1-216-212-00	METAL GLAZE	3.9K	5%	1/8W	
R553	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R554	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R555	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R556	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R557	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R558	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R559	1-260-083-11	CARBON	47	5%	1/2W	
R560	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R561	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R562	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W	
R563	1-216-041-00	METAL CHIP	470	5%	1/10W	
R564	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R565	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R566	1-216-202-00	METAL GLAZE	1.5K	5%	1/8W	
R568	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R569	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R570	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R571	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R572	1-249-401-11	CARBON	47	5%	1/4W	F
R573	1-249-401-11	CARBON	47	5%	1/4W	F
R574	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R575	1-216-198-00	METAL CHIP	1K	5%	1/8W	
R576	1-216-186-00	METAL GLAZE	330	5%	1/8W	
R577	1-216-097-00	METAL CHIP	100K	5%	1/10W	
		< TRANSFORMER >				
T501	1-423-631-21	TRANSFORMER, DC/DC CONVERTER				
		< THERMISTOR >				
TH551	1-808-779-11	THERMISTOR				
TH552	1-809-664-31	THERMISTOR, POSITIVE				
		< VARIABLE RESISTOR >				
VR501	1-238-817-11	RES, VAR, CARBON 20K/20K				
VR502	1-238-817-11	RES, VAR, CARBON 20K/20K				

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MISCELLANEOUS

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F551	1-532-732-11	FUSE (GRADE TYPE) (AUTO FUSE) (20A)

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